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Docket: C1039/7057(HCL/MAT)

SEQUENCE LISTING

<110> Davis, Heather L.
Krieg, Arthur M.
Schorr, Joachim
Wu, Tong

<120> Vectors and Methods for Immunization or
Therapeutic Protocols

<130> C1039/7057 (HCL/MAT)

<140> not yet assigned

<141> - -

<150> US 09/082,649

<151> 1998-05-20

<150> US 60/047,233

<151> 1997-05-20

<150> US 60/047,209

<151> 1997-05-20

<160> 84

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tcctgacgtt cctgacgtt

19

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09965104.092604

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<220>
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<212> DNA
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<220>
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<400> 16
gccctagtag tggttaacttt aaagggccc 29

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<220>

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<400> 18

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48

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45

<210> 20

<211> 38

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<220>

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gccctatattt aaattcgaaa gtactggacc tgttaaca

38

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37

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<400> 22

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<210> 23

<211> 29

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<210> 24
<211> 29
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<220>
<223> synthetic oligonucleotide

<400> 24
gtcgttgtgt cgtcaagtca gcgtaatgc 29

<210> 25
<211> 20
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<220>
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<400> 25
tcgtttctgt aatgaaggag 20

<210> 26
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<220>
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<400> 26
aaggcagttc cataggatgg 20

<210> 27
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tcgatctgcg attccaactc gtccaacatc aatac 35

<210> 28
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<220>
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<400> 28
tggtgagaat ggcaaaagtt 20

<210> 29
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<220>
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<400> 29
cattattcat tcgtgattgc g 21

<210> 30
<211> 24
<212> DNA
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<220>
<223> synthetic oligonucleotide

<400> 30
acgtctcagg aacactgcc a gcgc 24

<210> 31
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<220>
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<400> 31
agggatcgca gtggtgagta 20

<210> 32
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 32
tataaaatgc ttgatggtcg g 21

<210> 33
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<223> synthetic oligonucleotide

<400> 33
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<210> 34
<211> 20
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<220>
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<400> 34
tggcttccca tacaagcgat 20

<210> 35
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<220>
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<400> 35
tacattatcg cgagccatt 20

<210> 36
<211> 19
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<220>
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<400> 36
tggcctcgac gtttcccgt 19

<210> 37
<211> 29
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<220>
<223> synthetic oligonucleotide

<400> 37
atcgaattca gggcctcgtg atacgccta 29

<210> 38
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<212> DNA
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<220>
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09965104.092601

<400> 38
tgacttgacg acacaacgac agtcatgac caaaatccc 39

<210> 39
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<400> 39
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<210> 40
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<400> 40
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<212> DNA
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<400> 41
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<210> 42
<211> 37
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<400> 42
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0995101 099501

<400> 43
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<210> 44
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<400> 44
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<211> 38
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<220>
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<400> 45
tactcaccac tgcgatccct ggaaaaacag cattccag 38

<210> 46
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<400> 46
ccgaccatca agcattttat acgtactcct gatgatgca 39

<210> 47
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<220>
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<400> 47
cagaatttat gcctcttccc accatcaagc attttatac 39

<210> 48
<211> 38
<212> DNA
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<220>
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<400> 48

09955101.092501

atcgcttgta tgggaagcca gatgcgccag agttgttt

38

<210> 49
<211> 37
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<220>
<223> synthetic oligonucleotide

<400> 49
aatgggctcg cgataatgta gggcaatcag gtgcgac

37

<210> 50
<211> 38
<212> DNA
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<400> 50
acgggaaacg tcgaggccac gattaaattc caacatgg

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<210> 51
<211> 20
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<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> Has a phosphorothioate backbone.

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20

<210> 52
<211> 20
<212> DNA
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<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> Has a phosphorothioate backbone.

<400> 52
gggggtcaacg ttgagggggg

20

<210> 53
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<212> DNA
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 <220>
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 <400> 53
 tccaggactt tcctcaggtt 20

 <210> 54
 <211> 20
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 <220>
 <223> synthetic oligonucleotide

 <400> 54
 tccaggactt ctctcaggtt 20

 <210> 55
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 <212> DNA
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 <400> 55
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 <210> 56
 <211> 20
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 <221> misc_feature
 <222> (0)...(0)
 <223> Has phosphodiester backbone.

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 <210> 57
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 <220>
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 <400> 57
 ggcggcggcg gcggcggcgg 20

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<210> 58
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<220>
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<221> misc_feature
 <222> (0)...(0)
 <223> Backbone is phosphorothioate--phosphodiester chimera

<400> 58
 tccatgacgt tcctgacgtt 20

<210> 59
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<221> misc_feature
 <222> (0)...(0)
 <223> Has SOS-ODN backbone with two S-linkages at the 5' end, five S-linkages at the 3' end, and O-linkages in between.

<400> 59
 ggggtcaacg ttgagggggg 20

<210> 60
 <211> 20
 <212> DNA
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<220>
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<400> 60
 tctcccagcg tgcgcatat 20

<210> 61
 <211> 21
 <212> DNA
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<400> 61
 ggggtctgtg cttttggggg g 21

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<210> 62
 <211> 20
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 <220>
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 <400> 62
 tcaggggtgg ggggaacctt 20

 <210> 63
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 <220>
 <223> synthetic oligonucleotide

 <400> 63
 ggggttgacg ttttgggggg 20

 <210> 64
 <211> 20
 <212> DNA
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 <400> 64
 tctagcgttt ttagcgttcc 20

 <210> 65
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 <212> DNA
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 <220>
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 <400> 65
 tcgtcgttgt cggtgtcgtt 20

 <210> 66
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 <220>
 <223> synthetic oligonucleotide

 <221> misc_feature
 <222> (0)...(0)
 <223> Backbone is a phosphorothioate--phosphodiester
 chimera.

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| <p><400> 66 tcgtcgtttt gtcgttttgt cgtt</p> | <p>24</p> |
| <p><210> 67 <211> 22 <212> DNA <213> Artificial Sequence</p> | |
| <p><220> <223> synthetic oligonucleotide</p> | |
| <p><400> 67 tcgtcgttgt cgttttgtcg tt</p> | <p>22</p> |
| <p><210> 68 <211> 20 <212> DNA <213> Artificial Sequence</p> | |
| <p><220> <223> synthetic oligonucleotide</p> | |
| <p><221> misc_feature <222> (0)...(0) <223> Has a phosphodiester backbone.</p> | |
| <p><400> 68 tccatgacgt tcctgatgct</p> | <p>20</p> |
| <p><210> 69 <211> 15 <212> DNA <213> Artificial Sequence</p> | |
| <p><220> <223> synthetic oligonucleotide</p> | |
| <p><400> 69 gcgttttttt ttgcg</p> | <p>15</p> |
| <p><210> 70 <211> 20 <212> DNA <213> Artificial Sequence</p> | |
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| <p><400> 70 tccatgagct tcctgatgct</p> | <p>20</p> |
| <p><210> 71 <211> 20 <212> DNA <213> Artificial Sequence</p> | |

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<220>
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<400> 71
tccatgtcgt tcctgatgct 20

<210> 72
<211> 20
<212> DNA
<213> Artificial Sequence

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<223> synthetic oligonucleotide

<400> 72
tccatgtcgt tcctgatgcg 20

<210> 73
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 73
tccatgtcgt tccgcgcgcg 20

<210> 74
<211> 20
<212> DNA
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<400> 74
tccatgtcgt tcctgccgct 20

<210> 75
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<400> 75
gcggcgggcg gcgcgcgccc 20

<210> 76
<211> 20
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<220>
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<400> 76
gcgcgcgcgc gcgcgcgcgc 20

<210> 77
<211> 20
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<220>
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<400> 77
ccggccggcc ggccggccgg 20

<210> 78
<211> 20
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<400> 78
tccatgccgt tcctgccgtt 20

<210> 79
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<400> 79
tccatgacgt tcctgatgct 20

<210> 80
<211> 1360
<212> DNA
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<220>
<223> plasmid DNA wild-type Kanamycin resistance gene

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acgttggtgtc tcaaaatctc tgatgttaca ttgcacaaga taaaaatata tcatcatgaa 120
caataaaact gtctgcttac ataaacagta atacaagggg tgttatgagc catattcaac 180
gggaaacgtc gagggccgca ttaaattcca acatggatgc tgatttatat ggggtataaat 240
gggctcgcca taatgtcggg caatcaggtg cgacaatcta tcgcttgtat gggaagcccg 300
atgcgccaga gttgtttctg aaacatggca aaggtagcgt tgccaatgat gttacagatg 360
agatggtcag actaaactgg ctgacggaat ttatgcctct tccgaccatc aagcatttta 420
tccgtactcc tgatgatgca tggttactca ccactgcgat ccccgaaaaa acagcattcc 480

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| | | | | | | |
|-------------|-------------|-------------|------------|-------------|------------|------|
| aggtattaga | agaatatacct | gattcaggtg | aaaatattgt | tgatgcgctg | gcagtgttcc | 540 |
| tgcgccggtt | gcattcgatt | cctgtttgta | attgtccttt | taacagcgat | cgcgtatttc | 600 |
| gtctcgctca | ggcgcaatca | cgaatgaata | acggtttggt | tgatgcgagt | gattttgatg | 660 |
| acgagcgtaa | tggctggcct | gttgaacaag | tctggaaaga | aatgcataaa | cttttgccat | 720 |
| tctcaccgga | ttcagtcgtc | actcatggtg | atttctcact | tgataacctt | atttttgacg | 780 |
| aggggaaaatt | aataggttgt | attgatgttg | gacgagtcgg | aatcgagac | cgataccagg | 840 |
| atcttgccat | cctatggaac | tgccctgggtg | agttttctcc | ttcattacag | aaacggcttt | 900 |
| ttcaaaaata | tgggtattgat | aatcctgata | tgaataaatt | gcagtttcat | ttgatgctcg | 960 |
| atgagttttt | ctaatacagaa | ttgggttaatt | ggttgtaaca | ctggcagagc | attacgctga | 1020 |
| cttgacggga | cggcgcaagc | tcatgaccaa | aatcccttaa | cgtgagtttt | cgttccactg | 1080 |
| agcgtcagac | cccgtagaaa | agatcaaagg | atcttcttga | gatccttttt | ttctgcgcgt | 1140 |
| aatctgctgc | ttgcaaacaa | aaaaaccacc | gctaccagcg | gtgggtttggt | tgccggatca | 1200 |
| agagctacca | actctttttc | cgaaggtaac | tggtctcagc | agagcgcaga | taccaaatac | 1260 |
| tggtcttcta | gtgtagccgt | agttaggcca | ccacttcaag | aactctgtag | caccgcctac | 1320 |
| atacctcgct | ctgctaatacc | tgttaccagt | ggctgctgcc | | | 1360 |

<210> 81

<211> 1360

<212> DNA

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<220>

<223> plasmid DNA mutant Kanamycin resistance gene

<400> 81

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| acgttgtgtc | tcaaaatctc | tgatgttaca | ttgcacaaga | taaaaatata | tcatcatgaa | 120 |
| caataaaact | gtctgcttac | ataaacagta | atacaagggg | tgttatgagc | catattcaac | 180 |
| gggaaacgtc | gaggccacga | ttaaattcca | acatggatgc | tgatttatat | gggtataaat | 240 |
| gggctcgcg | taatgtagg | caatcaggtg | cgacaatcta | tcgcttgat | gggaagccag | 300 |
| atgcgccaga | gttgtttctg | aaacatggca | aaggtagcgt | tgccaatgat | gttacagatg | 360 |
| agatggtcag | actaaactgg | ctgacagaat | ttatgcctct | tcccaccatc | aagcatttta | 420 |
| tacgtactcc | tgatgatgca | tggttactca | ccactgcgat | ccctggaaaa | acagcattcc | 480 |
| aggtattaga | agaatatacct | gattcaggtg | aaaatattgt | tgatgcgctg | gcagtgttcc | 540 |
| tgagacgttt | gcattcgatt | cctgtttgta | attgtccttt | taacagcgat | cgcgtatttc | 600 |
| gtctcgctca | ggcgcaatca | cgaatgaata | atgggtttggt | tgatgcgagt | gattttgatg | 660 |
| acgagcgtaa | tggctggcct | gttgaacaag | tctggaaaga | aatgcataaa | cttttgccat | 720 |
| tctcaccaga | ttcagtcgtc | actcatggtg | atttctcact | tgataacctt | atttttgacg | 780 |
| aggggaaaatt | aataggttgt | attgatgttg | gacgagttgg | aatcgagac | cgataccagg | 840 |
| atcttgccat | cctatggaac | tgccctgggtg | agttttctcc | ttcattacag | aaacgacttt | 900 |
| ttcaaaaata | tgggtattgat | aatcctgata | tgaataaatt | gcagtttcat | ttgatgctcg | 960 |
| atgagttttt | ctaatacagaa | ttgggttaatt | ggttgtaaca | ctggcagagc | attacgctga | 1020 |
| cttgacgaca | caacgacagc | tcatgaccaa | aatcccttaa | cgtgagtttt | cgttccactg | 1080 |
| agcgtcagac | cccgtagaaa | agatcaaagg | atcttcttga | gatccttttt | ttctgcgcgt | 1140 |
| aatctgctgc | ttgcaaacaa | aaaaaccacc | gctaccagcg | gtgggtttggt | tgccggatca | 1200 |
| agagctacca | actctttttc | cgaaggtaac | tggtctcagc | agagcgcaga | taccaaatac | 1260 |
| tggtcttcta | gtgtagccgt | agttaggcca | ccacttcaag | aactctgtag | caccgcctac | 1320 |
| atacctcgct | ctgctaatacc | tgttaccagt | ggctgctgcc | | | 1360 |

<210> 82

<211> 269

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant Kanamycin resistance gene

09955101.092501

<400> 82
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Met Asp Ala Asp Leu Tyr Gly Tyr Lys Trp Ala Arg Asp Asn Val Gly
20 25 30
Gln Ser Gly Ala Thr Ile Tyr Arg Leu Tyr Gly Lys Pro Asp Ala Pro
35 40 45
Glu Leu Phe Leu Lys His Gly Lys Gly Ser Val Ala Asn Asp Val Thr
50 55 60
Asp Glu Met Val Arg Leu Asn Trp Leu Thr Glu Phe Met Pro Leu Pro
65 70 75 80
Thr Ile Lys His Phe Ile Arg Thr Pro Asp Asp Ala Trp Leu Leu Thr
85 90 95
Thr Ala Ile Pro Gly Lys Thr Ala Phe Gln Val Leu Glu Glu Tyr Pro
100 105 110
Asp Ser Gly Glu Asn Ile Val Asp Ala Leu Ala Val Phe Leu Arg Arg
115 120 125
Leu His Ser Ile Pro Val Cys Asn Cys Pro Phe Asn Ser Asp Arg Val
130 135 140
Phe Arg Leu Ala Gln Ala Gln Ser Arg Met Asn Asn Gly Leu Val Asp
145 150 155 160
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